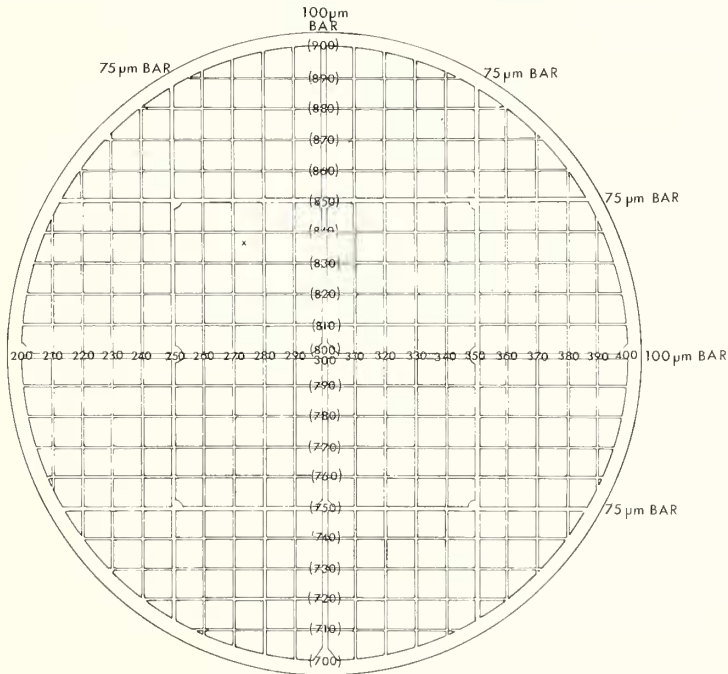


A SPECIMEN LOCATION TECHNIQUE FOR SEM STREW MOUNTS

by J. F. LAING

ABSTRACT. A technique is described for the preparation of strew mounts for SEM examination, which allows the position of any specimen to be recorded such that it can be re-examined at a later date.

SIMPLE strew mounts of palynological (or other micropalaeontological) material which are to be examined with a scanning electron microscope have previously suffered from the serious drawback that it is virtually impossible to relocate any particular specimen for later study. However, if a thin nickel grid, similar to the type used in transmission electron microscopy, is stuck on to the stub, it is possible to locate individual specimens by means of a series of co-ordinates. Text-fig. 1 is a scale diagram of the grid used. The grid was manufactured, according to the author's specifications, by Smethurst High-Light Ltd. of Bolton, Lancs.



TEXT-FIG. 1. Scale diagram of grid, $\times 8$. All grid bars $50 \mu\text{m}$ wide except where otherwise labelled. Triangles at the intersection of $100 \mu\text{m}$ bars, half circles at the intersection of $100 \mu\text{m}$ and $75 \mu\text{m}$ bars, and quarter circles at the intersection of $75 \mu\text{m}$ bars as shown.

The co-ordinate reference system. 'Eastings' shown from left to right, unbracketed; 'northings' from bottom to top, in brackets.

PREPARATION TECHNIQUE

1. Clean the surface of the stub with a tissue soaked in ether in order to remove any grease.

2. Coat the surface of the stub with a suitable adhesive; I have found the artist's material 'acrylic polymer varnish', manufactured by Reeves of Enfield, Middlesex, to be very suitable. A drop of the varnish is placed on the stub and spread evenly over the surface with a glass rod. It is then allowed to dry for about 10 minutes. The varnish is dry when it has changed from a milky colour to being transparent. (The stub should be covered as far as possible during preparation, in order to prevent dust and other foreign bodies from settling on to it.)

3. As soon as the varnish is dry, place the grid on to it; rub a glass rod over the grid applying a slight pressure. (It is advisable to place the grid on the stub as soon as the varnish is dry, otherwise it may not stick very well.)

4. After allowing the varnish to harden for about an hour, thoroughly mix the residue to be mounted with a little distilled water. Place a drop of this mixture on the area of the grid with a Pasteur pipette and gently stir the drop over the area of the grid with a glass rod. Allow to dry; it is advisable to stir occasionally during drying to prevent any floating material from being concentrated together at the end of drying.

5. Coat the stub (e.g. with gold-palladium) in the normal manner. It is now ready for examination.

THE CO-ORDINATE REFERENCE SYSTEM (see text-fig. 1)

Each square of the grid is examined systematically at a suitable magnification (I have found 1k to be a suitable working magnification). When a specimen has been found its position is noted in terms of 'eastings' and 'northings', in exactly the same manner as when giving a map reference.

The triangle in the centre of the grid is taken to point 'north'; the centre of the grid has the grid reference 300800. The 'eastings' run from 200 to 400, and the 'northings' from 700 to 900, the centre of each grid bar being the point where each unit of ten begins. Grid references are given in terms of the 'eastings' first, followed by the 'northings', for example point \times on text-fig. 1 has the grid reference 273836 (the units at the end of the 'eastings' and 'northings' are estimated).

The provision of some thicker grid bars, triangles, quarter circles, and half circles (see text-fig. 1) facilitates the location of any particular square by having to reduce magnification only a little, rather than to such an extent that the whole grid needs to be observed.

This technique has been found to be successful in the examination of palynological residues, but there is no reason why it could not be used in the examination of other similar-sized material (e.g. coccoliths).

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J. F. LAING

Department of Geology
Sedgwick Museum, Cambridge